WHAT IS CLAIMED IS:

1. A method for purifying a molecule from a mixture comprising:

loading the mixture onto a reverse phase liquid chromatography column; and

eluting the molecule from the column with a buffer containing a diol selected from the group consisting of 1,5 pentanediol, 1,6 hexanediol and 1,7 heptanediol.

2. The method of Claim 1, wherein the molecule is a polypeptide.

3. The method of Claim 2, wherein the molecule is selected from the group consisting of human growth hormone and growth hormone antagonist.

4. The method of Claim 1, wherein the molecule is a peptide.

5. The method of Claim 5, wherein the peptide is selected from the group consisting of α-MSH, enkephalin, somatostatin and somatotropin.

6. The method of Claim 1, wherein the diol is 1,6 hexanediol.

7. The method of Claim 1, wherein the column is a high performance liquid chromatography column.

8. The method of Claim 1, wherein the column is a preparative column.

9. The method of Claim 1, wherein the column has a diameter of between about 5 cm and about 2.0 m.

10. The method of Claim 9, wherein the column has a diameter of between about 10 cm and about 100 cm.

11. The method of Claim 1, wherein the column includes a polymeric resin.

12. The method of Claim 11, wherein the polymeric resin is styrene divinylbenzene.

13. The method of Claim 11, wherein the polymeric resin is methacrylate or acrylic.

14. The method of Claim 11, wherein the mixture is loaded on the column at between about 1.0 g molecule/liter bed volume and about 25.0 g molecule/liter bed volume.

15. The method of Claim 3, wherein the polypeptide is growth hormone antagonist.

16. The method of Claim 3, wherein the polypeptide is human growth hormone.

17. The method of Claim 1, wherein the buffer is at a pH between about 2.0 and about 12.0.

18. The method of Claim 17, wherein the buffer is at a pH between about 7.0 and about 11.0.

19. The method of Claim 18, wherein the buffer is at a pH between about 6.0 and about 8.0.

20. The method of Claim 7, wherein the concentration of 1,6 hexanediol in the buffer is between about 0% and about 80%.

21. The method of Claim 20, wherein the concentration of 1,6 hexanediol in the buffer is between about 0% and about 50%.

22. The method of Claim 1 further comprising further purification of the molecule.